REMARKS

Claims 1 through 12 are pending in this application.

Claims 11 and 12 are allowed.

Claims 1 through 10 are rejected

In the following, the Examiner's comments are included in bold, indented type, followed by the Applicant's remarks:

> **4. Claims 1-3, 5-7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (U.S. Patent 6,263,331 B1) in view of Paulley (U.S. Patent 6,516,310).**
>
> **Regarding claims 1, 5, 9, and 10, Liu at al. teach a method for joining an inner table and an outer table in a database in response to a query statement having an inclusion operator, said method comprising:**
>
> **a)   providing an inner table (Fig. 6, element 601);**
>
> **b)   providing an outer table having zero or more records for inclusion with said inner table (Fig. 6, element 601);**
>
> **Although Liu et al. do not clearly state that the outer table having records for inclusion. However, it indicates that the system determines which rows in the outer tables satisfy a selection criteria (i.e., all criteria). Since inclusion or exclusion operator (i.e., IN and not IN) is one of the user selection criteria, Liu et al. therefore teaches the inclusion criteria.**
>
> **d)   creating a hash table from said left table (col. 10, lines 39-42);**
>
> **e)   obtaining a hash value from said right table (col. 9, lines 48-52);**
>
> **f)   probing said hash table with a said hash value from said right table to determine if said hash value matches a value in said hash table (col. 10, lines 43-46); and**
>
> **g)   if said outer hash value matches said value in said hash table, then evaluating the actual values and, if the join condition is satisfied, including said row of said outer table in a result (col. 10, lines 47-48).**
>
> **c)   Liu et al. do not clearly teach the step of transposing said outer table and said inner table to form a right table and a left table, respectively;**
>
> **Paulley, however, teaches swapping the left outer joins and right outer joins to determine the best-cost strategy for the query (col. 18, lines 8-12). Examiner submits that swapping the joins to place them at their best positions is equivalent to transposing the inner and outer tables, since they solve the similar problem which is optimizing the query in order to save processing costs and increase the performance.**

> **It would have been obvious to one of ordinary skill in the art at the time of the invention was made to transpose the inner table and outer table to place the tables in the their best positions in order to save the processing costs for the queries and to increase system performance.**

Applicant respectfully disagrees and submits that Liu et al. and Paulley do not disclose, teach, or suggest each and every feature recited in Applicants' independent claims 1, 5, 9, and 10. For example, Liu et al. does not provide an inner table or an outer table as disclosed in claims 1, 5, 9, and 10. Applicant's inner table is:

1. provided in response to a query statement having an inclusion operator (claim 1);

2. provided in response to a query statement having an exclusion operator (claim 5);

3. designated by SQL statements having an inclusion join condition (claim 9); or

4. designated by SQL statements having an exclusion join condition (claim 10).

In Liu et al. "a smaller one of the two tables is designated as an outer table and a larger of the two tables as an inner table" (Column 5, lines 66-67). Therefore, neither Liu et al. nor Paulley disclose or hint at an inner table associated with an inclusion operator, an exclusion operation, an inclusion join candidate, or an exclusion join candidate as required by claims 1, 5, 9, or 10. For at least that reason and without disclaiming other distinctions, Liu et al. does not disclose or hint at the limitations of claims 1, 5, 9, and 10 or equivalents of the missing limitations.

Second, claims 1 and 9 disclose joining two tables using an inclusion operator and claims 5 and 10 disclose joining two tables using an exclusion operator. Liu et al. discusses a "hybrid join process [that] returns data from two tables which have at least one common data column." (Column 5, lines 59-60) "The hybrid hash join process determines which rows in the inner and outer tables satisfy a selection criteria." (Column 5, line 66-Column 6, line 2). Applicant is unable to locate a discussion in Liu et al. of joining tables on "all criteria," as the Examiner states. (Office Action, page 4) Therefore, neither Liu et al. nor Paulley disclose or hint at joining two tables using an inclusion operator as required by claims 1 and 9 or joining two tables using an exclusion operator, as required by claims 5 and 10 or equivalents.

Third, Paulley discusses a "method [where], *right outer joins* are rewritten as left outer joins by swapping the two inputs" (Column 18, Lines 7-9) (emphasis added) and does not disclose or hint at transposing the outer and inner table to form a right table and a left table in response to a query statement having an inclusion operator, as required by claim 1, an inclusion join candidates as required by claim 9, an exclusion operator, as required by claim 5, or an exclusion join candidate as required by claim 10. The Examiner admits that Liu et al. does not disclose this feature. Therefore, the combination of Paulley and Liu et al. does not disclose, teach, or suggest the limitations of claims 1, 5, 9, and 10.

For these reasons, Applicant respectfully requests that the rejections of claims 1, 5, 9 and 10 be withdrawn.

> **Regarding claims 2 and 6, Liu et al. further teach wherein scanning said inner table is accomplished one row at a time per processor (col. 9, lines 1-3).**

Applicant respectfully disagrees and submits that claims 2 and 6 depend from claims 1 and 5, respectively, and, for at least the reasons discussed above with regard to the independent claims, are patentable over Liu et al. and Paulley. Although Applicant has not provided detailed arguments with respect to claims 2 and 6, Applicant remains ready to do so if it becomes appropriate.

For these reasons, Applicant respectfully requests that the rejections of claims 2 and 6 be withdrawn.

> **Regarding claims 3 and 7, Liu et al. further teach wherein said step of obtaining a hash value from said right table includes calculating a hash value (col. 9, lines 48-50).**

Applicant respectfully disagrees and submits that claims 3 and 7 depend from claims 1 and 5, respectively, and, for at least the reasons discussed above with regard to the independent claims, are patentable over Liu et al. and Paulley. Although Applicant has not provided detailed arguments with respect to Claims 3 and 7, Applicant remains ready to do so if it becomes appropriate.

For these reasons, Applicant respectfully requests that the rejections of claims 3 and 7 be withdrawn.

> **5. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (U.S. Patent 6,263,331 B1) in view of Paulley (U.S. Patent**

> 6,516,310) as applied to claims 1-3, 5-7, 9, and 10 above, and further in view of Bestgen et al. (U.S. Patent 6,134,546).
>
> Regarding claims 4 and 8, Liu et al. do not explicitly teach wherein said step of obtaining a hash value from said right table includes retrieving a pre-calculated hash value from a row header.
>
> Bestgen et al., however, teach a Hash table structure includes a header pointing to a root page including multiple pointers to buckets for hash values (Fig. 3).
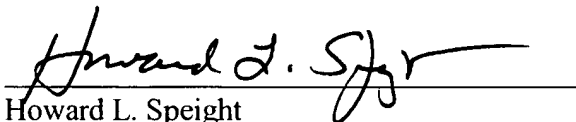>
> It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the hash values in the header as this would expedite the process of obtaining the hash values for evaluating selection criteria.

Applicant respectfully disagrees and submits that claims 4 and 8 depend from claims 1 and 5, respectively, and, for at least the reasons discussed above with regard to the independent claims, are patentable over Liu et al., Paulley, and Bestgen. Although Applicant has not provided detailed arguments with respect to claims 4 and 8, Applicant remains ready to do so if it becomes appropriate. For these reasons, Applicant respectfully requests that the rejections of claims 4 and 8 be withdrawn.

SUMMARY

Applicant contends that the claims are in condition for allowance, which action is requested. Applicants submit herewith a Petition for One Month Extension of Time (PTO/SB/22) and request that the one-month petition fee amount of $110.00 be debited from deposit account number 50-1673. Should any additional fees be required, Applicant requests that the fees be debited from deposit account number 50-1673.

Respectfully submitted,

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